

PATENT COOPERATION TREATY
PCT
INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Article 36 and Rule 70)

REC'D 04 JAN 2005

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Applicant's or agent's file reference FUELM-19.PCT	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/CA 03/01474	International filing date (day/month/year) 06.10.2003	Priority date (day/month/year) 04.10.2002
International Patent Classification (IPC) or both national classification and IPC B01D53/00		
Applicant FUELMAKER CORPORATION et al.		

<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 7 sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of 4 sheets.</p>
<p>3. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> I <input checked="" type="checkbox"/> Basis of the opinion II <input type="checkbox"/> Priority III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability IV <input checked="" type="checkbox"/> Lack of unity of invention V <input checked="" type="checkbox"/> Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement VI <input type="checkbox"/> Certain documents cited VII <input type="checkbox"/> Certain defects in the international application VIII <input type="checkbox"/> Certain observations on the international application

Date of submission of the demand 04.05.2004	Date of completion of this report 03.01.2005
Name and mailing address of the International preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 eprmu d Fax: +49 89 2399 - 4465	Authorized Officer Degen, M Telephone No. +49 89 2399-8612



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I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-7, 10-17	as originally filed
8, 9	received on 15.09.2004 with letter of 15.09.2004

Claims, Numbers

1-9	as originally filed
10-12	received on 15.09.2004 with letter of 15.09.2004

Drawings, Sheets

1/9-9/9	as originally filed
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2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- the language of publication of the international application (under Rule 48.3(b)).
- the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- contained in the international application in written form.
- filed together with the international application in computer readable form.
- furnished subsequently to this Authority in written form.
- furnished subsequently to this Authority in computer readable form.
- The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- the description, pages:
- the claims, Nos.:
- the drawings, sheets:

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5. This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

IV. Lack of unity of invention

1. In response to the invitation to restrict or pay additional fees, the applicant has:

- restricted the claims.
- paid additional fees.
- paid additional fees under protest.
- neither restricted nor paid additional fees.

2. This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is

- complied with.
- not complied with for the following reasons:

see separate sheet

4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:

- all parts.
- the parts relating to claims Nos. .

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

Novelty (N)	Yes: Claims	2-12
	No: Claims	1
Inventive step (IS)	Yes: Claims	2-9
	No: Claims	10-12
Industrial applicability (IA)	Yes: Claims	1-12
	No: Claims	

2. Citations and explanations

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1. Reference is made to the following documents:

- D1: WO 01/78872 A (ATLAS COPCO AIRPOWER NV ;VERTRiest DANNY ETIENNE ANDREE (BE)) 25 October 2001 (2001-10-25)
- D2: EP-A-0 799 635 (ATLAS COPCO AIRPOWER NV) 8 October 1997 (1997-10-08)
- D3: US-A-6 117 211 (CHAN ANTHONY WAI PANG ET AL) 12 September 2000 (2000-09-12)
- D4: US-A-5 263 826 (BAUMANN HEINZ ET AL) 23 November 1993 (1993-11-23)
- D5: US-A-4 966 206 (BAUMANN HEINZ ET AL) 30 October 1990 (1990-10-30)
- D6: US-A-5 029 622 (MUTTER HEINZ) 9 July 1991 (1991-07-09)

2. This Authority considers that there are two inventions covered by the claims indicated as follows:

- I: Claims 1-9 directed to a gas compressor system, suitable for operating in both a dryer and regeneration cycle.
- II: Claims 10-12 directed to a variable speed driven gas compressor.

2.1 The reasons for which the inventions are not so linked as to form a single general inventive concept, as required by Rule 13.1 PCT, are as follows:

The prior art documents such as document **D4** (cf. Col.2/L13-35 and fig. 1) or **D5** (cf. fig. 1) disclose gas compressors having the motor enclosed within a casing.

Since the type of enclosure is merely dictated by safety standards (Ex-proof classes for hazardous areas), the only new feature vs. above prior art is the provision of having a variable speed drive.

If the problem to be solved starting from **D4** or **D5** is to allow more flexibility to the compressor unit at turn-down conditions, the feature of providing a variable speed drive is considered to be an obvious one for the man skilled in the art. As a result, the subject-matter of **claim 10** does not fulfill the requirements of Art. 33(3) PCT.

2.2 It follows that since the above technical features does not make a contribution over the prior art it can not be considered as a special technical feature within the meaning of Rule 13.2 PCT.

This appears to show lack of corresponding technical effect for **claim 1**, concerned with

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a different problem, i.e. the operation of a compressor.

Consequently, neither the objective problem underlying the subjects of the claimed inventions, nor their solutions defined by the special technical features allow for a relationship to be established between the said inventions, which involves a single general inventive concept.

- 2.3 In conclusion, the groups of claims are not linked by common or corresponding special technical features and define two different inventions not linked by a single general inventive concept.

The application, hence does not meet the requirements of unity of invention as defined in Rules 13.1 and 13.2 PCT.

3. First invention

- 3.1 None of the cited documents anticipate the feature allowing a closed loop circulation, wherein at least a portion of the recirculating gas is passing through the desiccant bed for regeneration. Thus, the subject-matter of independent **claim 1** represents a novel (Art. 33(2) PCT). These features, however, do not seem to introduce subject-matter which could be considered to be inventive according Art. 33(3) PCT as they are merely directed to a possible operation mode (discontinuous) of a known compressor system such as that known from **D1** or **D2**, both operating in continuous mode.

- 3.2 The feature of positioning the desiccant bed between the first and second stage of a compressor as in **claim 2**, is novel and not fairly suggested by the available prior art and allows to design the desiccant bed for lower pressure levels (Art. 33(2) - (4) PCT).

- 3.3 Dependent **claims 3-9** concern particular embodiments of the subject-matter of above independent claims 1 considered together with **claim 2**, and therefore, they fulfil the requirements of Articles 33(2) - (4) PCT as well.

4. Second Invention

- 4.1 As already stated in 2.1, the subject-matter of **claim 10** does not suffice the requirements of Art. 33(3) PCT. Dependent **claims 11-12** do not seem to contain additional patentable subject-matter.

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- 4.2 Additionally, there seems to be a contradiction between the way of controlling the driver speed in **claim 10** (frequency) and **claim 12** (multiple harmonics).